satellite program'."[60/] After exhaustive evaluation of numerous comments from interested parties on this subject -- including those submitted by some of the nation's then preeminent industry participants -- the Commission concluded that "it will be more practical simply to require applicants to demonstrate sufficient current assets or operating income to cover the cost of the proposed system" and that this "provides adequate assurance at the time the Commission acts on the applications that the system can be built and launched."[61/] Thus, the financial standard ultimately adopted for the domestic fixed-satellite industry -- and used to this day -- is one that does not require that assets of the applicant corporation be "uncommitted" to other projects and thus available for the project at hand.[62/] The Commission specifically held that:

> [W]e will allow applicants to include operating income, i.e., operating revenues less operating expenses, as well as current assets, to demonstrate their financial capability. Further, we will not require specific assets to be earmarked for the proposed satellite system nor will we generally require an explicit

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60/ 1985 Domsat Order, 58 R.R.2D at 1272.

61/ Id.

62/ By contrast, the Commission's rules and policies do require such a "commitment" from an applicant owned by more than one corporate parent. See 47 C.F.R. § 25.140(d)(1) (1993) ("If the applicant is owned by more than one corporate parent, it must submit evidence of a commitment to the proposed satellite program by management of the corporate parent upon whom it is relying for financial resources . . .").

> management commitment that funds will be available for the proposed system.[63/]

Thus, it is clear that the insertion of the adjective *uncommitted* in the text of paragraph 27 of the NPRM was unintentional, belies the textual standard described, and should be removed.

2. Whatever Financial Standard Is Adopted, It Should Apply -- As In The New NVNG MSS Service -- Only To That Part Of The System Necessary To Commence Regular Commercial Operations.

a. The NVNG MSS Standard Is One That Recognizes The Realities Of The Marketplace.

In its Report and Order adopting licensing and service rules for the new NVNG MSS,[64/] the Commission adopted a financial standard which it claimed was somewhat less rigorous than the Domsat standard. In particular, it concluded that the multiple satellite constellation characteristics of the various NVNG MSS system proposals then before it warranted only a requirement that "an applicant . . .

63/ 1985 Domsat Order, 58 R.R.2d at 1273. The Commission also noted that the "rule we are adopting allows applicants to demonstrate financial qualifications through a showing of current assets, without balancing them against current liabilities." Id. at 1272.

64/ See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile-Satellite Service, 8 FCC Rcd 8450 (1993) ("NVNG MSS Order").

demonstrate the current financial ability to construct, launch and operate for one year *the first two satellites in its system."*[65/]

This modified financial standard recognized that regular commercial operations, like their counterparts in the geostationary arc, could be provided with a minimum number of satellites. The Commission determined, therefore, that there was no reason to preclude an applicant from relying on prospective revenues and additional sources of financing to carry the proposed project to completion. Indeed, the Commission's twin concerns that service to the public not be delayed and that the orbit-spectrum resource not be tied up were obviated by the fact that service to the public was being provided and the spectrum resource used. This recognizes the realities of the NVNG MSS marketplace and, at the same time, implements the lasting principle that the Commission has repeatedly stated has guided its decisions in this area: an evaluation of the specific service being considered.[66/]

65/ NVNG MSS Order, 8 FCC Rcd at 8451 (emphasis added).

66/ See, e.g., Amendment to the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to, a Radiodetermination Satellite Service, 104 F.C.C.2d 650, 663 (1986) ("RDSS Licensing Order"); Establishment of Satellite Systems Providing International Communications, 101 F.C.C.2d 1046, 1164 (1985) (subsequent history omitted) ("International Separate Systems").

b. For The Same Reasons That A Service-Specific Financial Standard Was Adopted For The NVNG MSS Service, A Similar Approach Should Be Applied To MSS Above 1 GHz.

The many similarities between the NVNG MSS service and the MSS Above 1 GHz service merit a closer alliance of financial standards.[67/] On the other hand, TRW recognizes that not all applicants in the MSS Above 1 GHz service can provide regular commercial operations with only two satellites, and that this fact should be taken into account in fashioning a financial standard that satisfies the Commission's dual public policy concerns -- prompt initiation of service to the public and use of the orbit-spectrum resource.

In TRW's view, these concerns can be satisfied, and a less competitor-preclusive financial test put in place, by the adoption of a financial standard that requires a demonstration of:

> sufficient current assets and operating income [or other funding] to construct, launch and operate for one year[68/] that part of the proposed

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67/ Indeed, the construction milestones proposed by the Commission for the MSS Above 1 GHz Service are identical to the ones adopted for the NVNG MSS. See NPRM, 9 FCC Rcd at 1136 (¶ 84).

68/ TRW agrees with the Commission's proposal (see NPRM, 9 FCC Rcd at 1109 n.57) to measure the first year of operations from "the launch of the first satellite in the constellation."

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system that is needed to provide commercial service over the United States.[69/]

Such an approach would properly recognize, as the Commission did in finalizing licensing rules for the new NVNG MSS service, that new, innovative, and commercially untried services warrant treatment different from that imposed on a mature industry. The entire history of Commission satellite regulation supports just such an approach.

Moreover, the foregoing financial standard will, in reality, provide the same level of assurance that the Commission receives in the case of Domsats. No applicant will proceed to construct and launch two, six, twelve, twenty-four, or whatever number of satellites is needed to begin commercial operations, and then, solely because it could not make the definitive showing that the Commission would have required three or four years earlier when its license was granted, fail to proceed to construct and launch its full constellation unless market realities dictate that its proposal fail. And in such an event, it is very likely that the Commission's construction milestones would have already acted to reallocate the spectrum utilized by this applicant to others more accepted by the marketplace.

69/ Because the Commission's technical eligibility standard will ultimately require applicants to demonstrate the capability to provide full coverage of all fifty states, the financial standard need only address a minimum, practical coverage capability; i.e, CONUS.

The public interest will be disserved by the application of an overly restrictive financial standard that has no purpose other than unnecessarily to winnow out prospective service providers who would not otherwise be precluded from providing service -- as would be the case under either a CDMA mandated access technique or the Commission's own proposed band segmentation plan (whether as initially proposed or as modified in the manner suggested by TRW). A phased-in approach to the implementation of global MSS should be encouraged; it should not be hindered by an unnecessary and prohibitive financial standard that provides no public interest benefits.

II. PROCESSING ALTERNATIVES

A. ALTHOUGH TRW GENERALLY SUPPORTS THE CONCEPT OF BAND SHARING AS A MEANS OF ACCELERATING THE ESTABLISHMENT OF U.S. MSS ABOVE 1 GHZ SYSTEMS, THE SHARING PROPOSAL ADVANCED IN THE NPRM IS INEQUITABLE TO CDMA APPLICANTS AND MUST BE REVISED.

1. Summary of TRW's Position

In an effort to resolve a contentious and sticky policy issue, the Commission has advanced a proposal that could form the backbone of a workable solution to the mutual exclusivity that currently characterizes the MSS Above 1 GHz applicants. TRW believes that the Commission's proposal, however, is inequitable in its treatment of CDMA systems, and is reflective of several flawed assumptions. If these defects are corrected and an even-handed and objectively fair proposal is crafted, the Commission may be able expeditiously to establish the service.

To this end, TRW has devised a sharing plan that endeavors to correct the defects of the Commission's proposal, and still enable the admirable goals it sets to be achieved. TRW is willing to sign on to a sharing proposal that is fair and move forward to the next phase of industry development. It will, however, vehemently oppose any plan or revision thereof that is not fair. From TRW's perspective, a bad sharing solution is no solution at all.

Thus, it is TRW's position that:

- generally assigning 5.15 MHz to FDMA/TDMA systems and 11.35 MHz to CDMA systems is acceptable;

- such a band segmentation plan **must** be preceded by a transitional plan that accounts for the operation of GLONASS in the L-band, but also provides for all applicants and the U.S. Government to work actively to ensure that this plan is indeed only transitional; and

- the interplay between the band segments **must** be reordered to assure fairness and equity among the applicants.

With these basic parameters, TRW offers its specific suggestions to improve the Commission's basic sharing formula.

2. To The Extent That The Commission Hopes To License All Qualified MSS Above 1 GHz Applicants, Its Sharing Proposal Marks A Significant First Step.

a. Notwithstanding Prior Efforts To Compromise, TRW Continues To Believe In The Many Benefits Of Full-Band Interference Sharing

The fundamental issue to be resolved in this rulemaking is how the Commission will choose among applicants that can satisfy its heightened qualifications criteria.[70/] In other words, the Commission, assuming that two or more mutually exclusive applicants will be able to meet the coverage and financial qualifications

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70/ See NPRM, 9 FCC Rcd at 1109 (¶ 29).

standards it is proposing, needs to decide next how to process those remaining applications to grant.[71/] Although the Commission has asked commenters to address such mutual exclusivity-resolving options as comparative hearings, spectrum auctions, and lotteries -- and TRW does address each of these alternatives in turn below -- it states that its "preferred processing alternative is to develop a plan to accommodate all qualified applicants."[72/]

The issue that now occupies a central position in the NPRM is actually the latest iteration of the core issue that has been hanging over this proceeding since December 1990, when Motorola Satellite Communications, Inc. ("Motorola") filed an application that was mutually exclusive with the November 1990 application that had been filed for the MSS/RDSS bands by Ellipsat Corporation ("Ellipsat"). The real question, then and now, is whether the Commission's longstanding satellite policies, policies that conclusively favor the establishment of competitive markets characterized by meaningful multiple entry, are better served by the adoption of the competition-friendly technical rules that mandate the use of CDMA transmission techniques across the 1610-1626.5 MHz and 2483.5-2500 MHz bands than they would be by the adoption of Motorola's mutually exclusive proposal to employ bi-directional

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71/ See id.

72/ Id.

FDMA/TDMA transmission techniques that use the 1616.5-1626.5 MHz band segment on a monopoly basis.[73/]

This issue and its offshoots have been the subject of enough petitions, oppositions, replies, supplemental filings, waiver requests, and emergency and extraordinary motions over the last three years to fill several large filing cabinets. Nevertheless, and despite the invaluable opportunity for the main protagonists to meet face to face and exchange data over an intense three-month period early last year,[74/] no resolution has emerged that satisfies all of them.

The fact that the policy question that underlies the mutual exclusivity issue has not yet been resolved does not mean that it is insoluble. Indeed, from both a technical and a policy standpoint, the answer has been obvious from the outset. The parties that have proposed to employ full-band interference sharing techniques (such as the CDMA transmission technique) are supporting a technologically sound, state-of-the-art solution that will undoubtedly permit multiple entry and meaningful sharing,

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73/ Of the five applicants for nongeostationary MSS Above 1 GHz systems, four have either applied for systems that would use CDMA transmission techniques in both the 1610-1626.5 MHz and 2483.5-2500 MHz bands, or have indicated their concurrence in an approach where spectrum is utilized on a full-band interference sharing basis.

74/ The MSS Above 1 GHz Negotiated Rulemaking Committee (the "Committee") was established last year in this proceeding in an attempt to recommend technical rules for implementing MSS Above 1 GHz service in the MSS/RDSS bands. The Committee's report formed the basis for many of the rule proposals -- in particular the proposals dealing with interservice sharing issues -- that are advanced in the NPRM. See Report of the MSS Above 1 GHz Negotiated Rulemaking Committee, CC Docket No. 92-166 (April 6, 1993) ("Committee Report").

and that has its procompetitive antecedents in the most venerable of Commission satellite decisions.[75/] Motorola, on the other hand, which continues to advocate its non-competitive FDMA/TDMA approach, seeks exclusive access to a substantial segment of spectrum in order to promote its own singular vision of the market.

Throughout this proceeding, TRW has remained committed to a solution that mandates full-band interference sharing of the entire 1610-1626.5 MHz and 2483.5-2500 MHz bands. Full-band interference sharing can accommodate multiple applicants without the need for band segmentation that would reduce the capacity of all systems, and would thus maximize the range of new and low-cost services that would be available to users both domestically and internationally.[76/]

When the Commission has been faced with this type of issue in the past, it has come down squarely on the side of technology that permits multiple entry. For instance, in its proceeding to develop regulations and policies for the RDSS, which remains the sole domestic satellite service extant in the frequency bands at issue here,

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75/ See, e.g., Domestic Communications-Satellite Facilities, 22 F.C.C.2d 86 (1970); 35 F.C.C.2d 844, recon. in part, 38 F.C.C.2d 665 (1972). See also International Separate Systems, 101 F.C.C.2d at 1065-67.

76/ See Committee Report at Annex 1, Attachment 1 (Final Report of The Majority of the Active Participants of Informal Working Group 1 to the MSS Above 1 GHz Negotiated Rulemaking Committee), at i - iii ("Majority Report"). The Majority Report was joined or endorsed by every MSS Above 1 GHz applicant and known potential applicant except Motorola. That Celsat, Inc., a potential applicant who was excluded from the first processing round by virtue of its failure to meet the June 3, 1991 cut-off deadline for applications, would endorse the plan speaks volumes for the ability of full-band interference sharing to protect the interests of future applicants.

the Commission rejected on policy grounds the proposal of an applicant that sought to specify a transmission technique that precluded multiple entry in whatever band segment was used. The Commission decided instead to adopt a full-band spread spectrum approach that would permit multiple entry.[77/] The reasons for TRW's commitment to CDMA techniques are, in short, numerous and substantial.

b. The Desire To Expedite The Establishment Of The MSS Above 1 GHz Service Has Pushed The CDMA And FDMA/TDMA Supporters To Reconsider Band Sharing.

Although TRW and other of the MSS Above 1 GHz applicants continue to believe in the superiority of the full-band interference sharing approach from both a regulatory and a technical standpoint, all of the applicants have expressed a willingness to entertain the possibility of a compromise solution if such a solution would speed the establishment of the MSS Above 1 GHz service and ensure U.S. systems an opportunity to compete on a timely basis with the international systems that are under development for the same bands. Last October, in the interest of moving

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77/ See RDSS Licensing Order, 104 F.C.C.2d at 661-662. In its RDSS Licensing Order, the Commission decided not to mandate specific system parameters or coding schemes, but instead left it to the permittees to coordinate their technical differences. Id. at 662. See also 47 C.F.R. § 25.141(e)-(f) (1993) (formerly 47 C.F.R. § 25.392(e)-(f) (1990). The Majority Report embraced this principle as well. Majority Report at ii. Notably, in the RDSS Licensing Order, the Commission afforded all of the applicants -- including the applicant whose technical approach was rejected outright -- an opportunity to amend their applications to conform to the new rules. RDSS Licensing Order, 104 F.C.C.2d at 662.

the MSS Above 1 GHz service out of the quagmire and into the marketplace, two coalitions of MSS Above 1 GHz applicants filed separate proposals for sharing the 1610-1626.5 MHz band between CDMA and FDMA/TDMA users.[78/]

The two plans possessed fundamental differences in their overall approach to system licensing and the mechanics of spectrum sharing between CDMA and FDMA/TDMA systems. The plan proposed by TRW, Ellipsat, and Constellation Communications, Inc. ("Constellation") contemplated that the two transmission techniques would share the 1610-1626.5 MHz band on the basis of guaranteed assignments of usable spectrum, with the ability to move into additional small segments upon a two-pronged showing of need for access to more bandwidth.[79/] The TRW/Constellation/Ellipsat Sharing Plan even included alternative scenarios that were dependent upon whether "GLONASS," the Russian aeronautical radionavigation system, had been reconfigured in such a way as to make the entire 1610-1626.5 MHz band available for MSS Above 1 GHz operations.[80/]

78/ See Joint Spectrum Sharing Proposal of Constellation Communications, Inc., Ellipsat Corporation, and TRW Inc., CC Docket No. 92-166/ET Docket No. 92-28 (filed October 8, 1993) ("TRW/Constellation/Ellipsat Sharing Plan"). See also Jointly Filed Comments of Motorola and Loral Qualcomm Satellite Services, CC Docket No. 92-166/ET Docket No. 92-28 (filed October 7, 1993) ("Motorola/LQSS Joint Comments").

79/ See TRW/Constellation/Ellipsat Sharing Plan at 9-10, 13.

80/ See id. at 9-10, 11.

By contrast, what TRW and its co-filers objected to in the Motorola/Loral Qualcomm Satellite Services ("LQSS") plan was the notion that the latter plan would have the first MSS Above 1 GHz system into operation occupy the entire available bandwidth. As additional systems using incompatible transmission techniques were brought on line, the existing systems would be expected voluntarily to cut back on their frequency assignments to make room for the new entrant. The assumptions underlying the Motorola/LQSS approach are unrealistic, and the plan itself would, in the view of TRW, Constellation, and Ellipsat, have been extremely difficult to implement.[81/]

For all of their differences, however, the two proposals also had several key ingredients in common. For example:

- Both plans called for the U.S. Government to act swiftly and forcefully to ensure that GLONASS is reconfigured in such a way as to permit the use of the entire 1610-1626.5 MHz band by MSS Above 1 GHz systems.[82/]

81/ A concise synopsis of the TRW/Constellation/Ellipsat critique of the Motorola/LQSS "start big/grow small" approach is presented in the Response of Constellation Communications, Inc., Ellipsat Corporation, and TRW Inc. to Motorola/LQSS Joint Comments, CC Docket No. 92-166/ET Docket No. 92-28, at 5 (filed October 20, 1993), incorporated herein by reference.

82/ See TRW/Constellation/Ellipsat Sharing Plan at 11; Motorola/LQSS Joint Comments at 5-8 and Appendix A thereto.

- Under both plans, all five pending nongeostationary MSS Above 1 GHz applicants would be authorized to construct systems capable of operating across the available bandwidth.[83/]

- Both plans would have the Commission impose rigid construction milestones that would be strictly enforced.[84/]

- Most significantly, both sets of parties contemplated that the 1610-1626.5 MHz band would be segmented in such a way as to permit systems employing CDMA techniques to operate on a full-band interference sharing basis in one portion of the band while Motorola would be able to employ its FDMA/TDMA techniques on a bi-directional basis in a separate portion of the band.

c. The Commission's Proposal, Though Not Entirely Acceptable In Its Present Form, Establishes A Framework Upon Which It Should Be Possible To Build An Acceptable Band Segmentation Solution.

If the Commission accepts the premise that the licensing of MSS Above 1 GHz systems must be accelerated if U.S. licensees are to have a meaningful opportunity to compete in the global MSS marketplace, it would seem that an attempt to fashion a solution that accommodates all qualified applications, regardless of transmission technique, is reasonable. TRW has no serious quarrel with such a

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83/ See TRW/Constellation/Ellipsat Sharing Plan at 12-13; Motorola/LQSS Joint Comments at 9-10.

84/ See TRW/Constellation/Ellipsat Sharing Plan at 21-22; Motorola/LQSS Joint Comments at 21-22.

determination,[85] and in fact believes that the Commission has endeavored mightily and with great insight and restraint to arrive at a solution that would enable all qualified applicants to establish MSS Above 1 GHz systems. Nevertheless, and as is to be expected with any attempt to forge a compromise solution to a dispute where the main protagonists are as polarized as the positions of the CDMA and FDMA/TDMA camps are in this proceeding, the proposal will inevitably please no one entirely. That certainly is the case with respect to TRW here.

TRW can accept the broad framework of the sharing proposal that the Commission has advanced in the NPRM. Indeed, the sharing proposal advanced in the NPRM appears to be based loosely on the approach taken by TRW, Constellation, and Ellipsat in their Sharing Plan. Eschewing the more odious elements of the Motorola/LQSS "start big/grow small" approach, the Commission proposes instead an approach that would, at least preliminarily, provide dedicated spectrum assignments across the 1610-1626.5 MHz band for both CDMA systems (11.35 megahertz) and the one FDMA/TDMA system (5.15 megahertz).[86]

85/ TRW stated in the TRW/Constellation/Ellipsat Sharing Plan that it was participating in the presentation of a sharing proposal not out of a belief in the superiority of such a solution, but "in the interest of breaking the impasse that presently exists, and thereby moving the industry forward to a point where market forces can take over from regulatory fiat." TRW/Constellation/Ellipsat Sharing Plan at 8.

86/ See NPRM, 9 FCC Rcd at 1110-1111 (¶ 31).

TRW, however, must object to a number of the fundamental determinations and assumptions the Commission made in fleshing out its proposal, on the grounds that they are inequitable and/or without foundation. In an effort to keep the proceeding moving forward, TRW suggests ways in which the Commission's assumptions can be reformed or refined in order to lead to the establishment of a sharing plan for all qualified MSS Above 1 GHz applicants that is equitable, in line with objective facts, and able to accommodate any reasonably anticipated developments.

3. The Commission's Sharing Proposal Contains A Series Of Flawed And Unsupported Assumptions That Combine To Render It Both Inequitable To Proponents Of Full-Band Interference Sharing And Incapable Of Adoption.

a. The Commission Cannot Adopt A Sharing Plan That Simply Assumes That GLONASS Will Be Removed From The Entire 1610-1626.5 MHz Band; Any Sharing Plan That Forms The Basis For MSS Above 1 GHz System Licensing Must Address The Current GLONASS Situation.

As an integral element of its proposal, the Commission assumes for licensing purposes that the entire 1610-1626.5 MHz band will be available for MSS Above 1 GHz system licensing, "at least in the long term."[87/] Although it

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87/ See id. at 1110 (¶ 30) and n.59.

recognizes "that a GLONASS transition to bands below 1610 MHz may not be completed when the first MSS satellites are launched in the late 1990's[,]"[88/] and that MSS licensees would be forced to operate with less than the full amount of their assigned spectrum during the initial phases of operation, the Commission makes no concrete proposal for an interim sharing plan that would take effect until such time as the GLONASS situation is fully resolved.[89/] This is a fatal shortcoming of the sharing plan outlined in the NPRM. The development of a plan that will apply to the sharing environment that will exist until such time as GLONASS is as far removed from the 1610-1616 MHz band as can be achieved is an absolute prerequisite to the adoption of a sharing plan for the MSS Above 1 GHz service that would accommodate both CDMA system and the one FDMA/TDMA system.

GLONASS is presently an impediment to MSS Above 1 GHz operations in the 1610-1616 MHz band, and may remain so indefinitely. Although the Commission and TRW have reason to expect that the Russians will agree at some

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88/ Id.

89/ The Commission does suggest, however, that "if a start-up requirement of 7.5 MHz is used for CDMA systems and 3.3 MHz for a FDMA/TDMA system, it may be possible to operate five systems, at least initially, over less than 16.5 MHz of bandwidth." NPRM, 9 FCC Rcd at 1111 (¶ 32) & n.64. The Commission goes on to suggest that "[i]f the 1610-1616 MHz band is not immediately available to MSS Above 1 GHz operators, these initial requirements may be used as the foundation for any interim spectrum sharing plan." Id. It does not allow as to how the 10.8 megahertz of spectrum it is referring to (7.5 megahertz for CDMA plus 3.3 megahertz for FDMA/TDMA) would fit into the 10.5 megahertz at 1616-1626.5 MHz, nor does it make any effort to firm up such an interim plan or propose conditions for its implementation.

point to revise the frequency plan for GLONASS in a manner that will free up badly needed additional spectrum for MSS Above 1 GHz operations, no one can predict with any accuracy when that point will be reached, and under what conditions MSS Above 1 GHz systems will have access to some or all of the frequencies between 1610 and 1616 MHz.[90/] These uncertainties, combined with the fact that the GLONASS system is beyond the control of the U.S. Government, make the development of a transitional or interim sharing plan an essential integral element of any sharing proposal that will emanate from this proceeding. TRW offers such a plan in Section II(A)(3), below.

b. The Commission's Proposal To Assign 5.15 Megahertz Of The Best Spectrum In The 1610-1626.5 MHz Band To Motorola Is Arbitrary, And Is Unreasonably Skewed In Favor Of The One Applicant That Is Incapable Of Sharing Spectrum.

Another principal shortcoming of the Commission's sharing proposal reveals itself very early in the discussion. This shortcoming lies in the Commission's preliminary determination that if there are 16.5 megahertz of spectrum available for MSS Above 1 GHz systems to share, Motorola should be assigned fully 5.15 megahertz at the top of the 1610-1626.5 MHz band for its exclusive use in

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90/ A further, more detailed discussion of the uncertainties associated with a partial or even full GLONASS retreat from the 1610-1616 MHz band is presented in Section III(B), infra.

establishing a bi-directional FDMA/TDMA system -- and given the ability to expand that assignment to 8.25 megahertz.[91/] The Commission has no basis for crediting Motorola's claim to need 5.25 megahertz of spectrum in order to operate its system -- indeed that claim is contradicted by Motorola's most recent filing in this proceeding.[92/] And even if Motorola's claim was supported, the Commission offers no justification for according such favored treatment to a single applicant. The Commission's proposed spectrum assignment plan illogically favors the one applicant that is unable to share spectrum (giving it one-third of the available spectrum), and does so at the direct expense of the four who can share (relegating all of them together to only two-thirds of the band).

i. The Commission Had No Record Basis On Which To Accept Motorola's Uncorroborated Statement That It Requires Five Megahertz Of Spectrum For Its Proposed MSS Above 1 GHz System.

The Commission's assessment that Motorola needs 5.15 megahertz of spectrum in which to operate its proposed system is completely arbitrary, and is based entirely on an assertion Motorola made in an unauthorized and unanswered pleading. In fact, the Commission not only credits this assertion, it proposes to assign to Motorola the relatively untainted top section of the 1610-1626.5 MHz band in which

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91/ See NPRM, 9 FCC Rcd at 1111 (¶ 32).

92/ See Motorola/LQSS Joint Comments and discussion, infra (subsection (i)).

to conduct its operations -- while leaving all of the other applicants to share the lower portion of the band not only with each other but also with the Radioastronomy service and with GLONASS.

The Commission's conclusion that Motorola can operate successfully only if it has access to 5.15 megahertz of bandwidth is based on a statement in Motorola's August 1993 "Views of the Essential Elements of A Successful Spectrum Sharing Plan for 'Big LEOs.'"[93/] Unfortunately, this pleading was an out-of-cycle filing that violated Section 1.405(c) of the Commission's Rules,[94/] and that was neither acknowledged by the Commission, placed on public notice, nor responded to by interested parties.

93/ See NPRM, 9 FCC Rcd at 1110-1111 (¶ 31) & n.61.

94/ See 47 C.F.R. § 1.405 (1992). Section 1.405 of the Commission's Rules authorizes interested persons to file statements in support of or in opposition to petitions for rule making within 30 days after the Commission gives public notice of the petition, and provides a single opportunity for replies. See 47 C.F.R. § 1.405(a) - (b). Section 1.405(c) specifically states that "[n]o additional pleadings may be filed unless specifically requested by the Commission or authorized by it." 47 C.F.R. § 1.405(c). In 1991, the Commission issued the public notices referenced in Section 1.405(a) with respect to petitions for rule making filed by TRW, Motorola, and others, and the specified pleading cycles were completed in due course thereafter. A year later, the Commission issued a public notice in the instant proceeding, requesting comments from interested parties as to whether a Negotiated Rulemaking Committee should be formed in an effort to resolve the outstanding issues. See Public Notice, "FCC Asks for Comments Regarding the Establishment of an Advisory Committee to Negotiate Proposed Regulations," CC Docket No. 92-166 (August 7, 1992). This clearly was a call for the type of additional pleadings that the Commission is authorized to request under Section 1.405(c). So far as TRW is aware, the Commission made no other requests for additional comments or pleadings.

What is cognizable, but lacking any further elaboration by the Commission, is its conclusion that "as little as 3.3 MHz may be sufficient to accommodate Motorola."[95/] The Commission based this assessment on the Motorola/LQSS sharing plan, in which those two parties contemplated dividing the entire 1610-1626.5 MHz band equally among all fully operational systems -- with the full-band interference sharing systems pooling their spectrum assignments. Describing the Motorola/LQSS plan as "nowhere indicat[ing] that any LEO applicant will be found unqualified[,]" the Commission inferred "that Motorola believes it could operate in its one-fifth share of the 16.5 MHz available, or 3.3 MHz."[96/]

If nothing else, the fact that Motorola has indicated that its MSS Above 1 GHz system can be accommodated in 3.3 megahertz of spectrum means that it was arbitrary for the Commission to propose to award it 5.15 megahertz of spectrum to start. The Commission should reform its proposal to account for the fact that in a 16.5 megahertz sharing environment, Motorola "needs" access to much less than the 5.15 megahertz of spectrum the Commission proposed to assign it in the NPRM.

95/ NPRM, 9 FCC Rcd at 1111 (¶ 31) (footnote omitted).

96/ Id. at 1111 (¶ 31) & n.62.

ii. The Commission's Sharing Proposal Unfairly Favors Motorola's FDMA/TDMA System At The Expense Of Those Systems That Are Consistent With The Commission's Satellite Policies And Spectrum Rules.

Reformation of the sharing proposal presented in the NPRM is made especially imperative by the fact that the spectrum to be assigned to Motorola for its FDMA/TDMA system is in the portion of the 1610-1626.5 MHz band that is relatively unimpeded by the interservice sharing constraints that affect other portions of the band. What the Commission has done is to skew the assignment of spectrum to MSS Above 1 GHz systems unreasonably toward the one applicant that is absolutely unable to share with anyone else, and away from the current applicants that can share. In effect, the Commission has proposed to give Motorola the spectrum equivalent of a penthouse suite on "Boardwalk" while relegating the applicants that can serve its competitive multiple entry policies to cold-water flats on "Baltic Avenue."

For the reasons explained and to be explained in the preceding and following sections, there is a substantial disparity between the quality of spectrum at the lower end of the 1610-1626.5 MHz band for use by MSS Above 1 GHz systems, and the quality of the spectrum in the upper portion of the band. MSS operation below 1616 MHz is, at present, effectively precluded by the need to protect the co-primary use of the band by the Russian GLONASS system. Even if GLONASS is removed from direct frequency conflicts at 1610-1616 MHz, there are likely to be

significant lingering constraints on MSS operations in the lower end of the 1610-1626.5 MHz band. Also, and separate from the GLONASS situation, are the constraints on MSS Above 1 GHz operations in the 1610.6-1613.8 MHz band that are imposed to protect the Radioastronomy service during those periods in which observations are being made. Because the Commission's proposal puts Motorola's FDMA/TDMA monopoly system at the upper end of the 1610-1626.5 MHz band, where it is relatively well-insulated from the taint that is associated with the lower-end frequencies, it has effectively enhanced the value -- in terms of utility and ease of implementation -- of the spectrum proposed to be assigned to Motorola.[97/]

iii. The Proposal To Take Spectrum From A CDMA System, Without Any Regard To The Circumstances, Is Particularly One-Sided.

Not only does the Commission propose to favor Motorola by virtue of its placement in the upper portion of the 1610-1626.5 MHz band, it provides Motorola with an opportunity to increase its spectrum assignment from 5.15 megahertz to 8.25 megahertz (all above 1616 MHz) without providing the CDMA systems with any

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97/ In a nutshell, the constraints on the lower frequencies in the 1610-1626.5 MHz band mean that one megahertz of spectrum at 1610-1616 MHz is not as valuable from an operational standpoint as the one megahertz of spectrum at 1625.5-1626.5 MHz. This inequality of spectrum in a Commission plan that forces one or more applicants to accept an "inferior" spectrum assignment without first being granted a hearing would contravene Section 309 of the Act, as interpreted by the United States Supreme Court in Ashbacker Radio Corp. v. FCC, 326 U.S. 327 (1945).